

Claims:

1 1. A method of operating a base station to wirelessly transmit voice or
2 streaming communications and data communications to a plurality of user terminals on a
3 carrier, the method comprising:

4 repeatedly and sequentially wirelessly transmitting time division multiplexed
5 superframes to the plurality of user terminals on the carrier, wherein each time division
6 multiplexed superframe comprises a plurality of frames, wherein at least one of the frames
7 carries voice communications, and wherein at least one of the frames carries data
8 communications;

9 for each frame carrying voice communications, transmitting a plurality of voice
10 packets contained in the frame;

11 wherein each voice packet includes voice bits for a respective user; and

12 wherein each voice packet includes a preamble having a user identifier and an
13 indication of the length of the voice packet.

1 2. The method of claim 1, wherein at least one Walsh function is employed to
2 identify the user and to indicate the length of a voice packet.

1 3. The method of claim 2, wherein a single Walsh function both identifies the
2 respective user and indicates the length of the voice packet.

1 4. The method of claim 2, wherein:
2 a first unique Walsh function of the preamble identifies the user; and
3 a second unique Walsh function of the preamble indicates the length of voice packet.

1 5. The method of claim 4, wherein:
2 the first unique Walsh function is modulated on the carrier during a first time period
3 of the preamble; and
4 the second unique Walsh function is modulated on the carrier during a second time
5 period of the preamble.

1 6. The method of claim 5, wherein both the first unique Walsh function and the
2 second unique Walsh function are modulated on an in-phase portion of the carrier.

1 7. The method of claim 3, wherein:
2 the first unique Walsh function is modulated on an in-phase portion of the carrier;
3 and
4 the second unique Walsh function is modulated on the quadrature-phase portion of
5 the carrier.

1 8. The method of claim 7, wherein the first unique Walsh function and the
2 second unique Walsh function are concurrently modulated on the carrier.

1 9. The method of claim 1, wherein at least one voice packet also includes a
2 pointer to a subsequent voice packet.

1 10. The method of claim 9, wherein at least one Walsh function is employed to
2 identify the user and to indicate the length of a voice packet.

1 11. A superframe embodied on a carrier that carries voice or streaming
2 communications and data communications intended for a plurality of user terminals, the
3 superframe comprising:

4 a plurality of frames, wherein at least one of the frames carries voice
5 communications, and wherein at least one of the frames carries data communications;

6 for each frame carrying voice communications, a plurality of voice packets contained
7 in the frame;

8 wherein each voice packet includes voice bits for a respective user; and

9 wherein each voice packet includes a preamble having a user identifier and an
10 indication of the length of the voice packet.

1 12. The superframe of claim 11, wherein at least one Walsh function is employed
2 to identify the user and to indicate the length of a voice packet.

1 13. The superframe of claim 12, wherein a single Walsh function both identifies
2 the respective user and indicates the length of the voice packet.

1 14. The superframe of claim 12, wherein:
2 a first unique Walsh function of the preamble identifies the user; and
3 a second unique Walsh function of the preamble indicates the length of voice packet.

1 15. The superframe of claim 14, wherein:
2 the first unique Walsh function is modulated on the carrier during a first time period
3 of the preamble; and
4 the second unique Walsh function is modulated on the carrier during a second time

5 period of the preamble.

1 16. The superframe of claim 15, wherein both the first unique Walsh function
2 and the second unique Walsh function are modulated on an in-phase portion of the carrier.

1 17. The superframe of claim 14, wherein:
2 the first unique Walsh function is modulated on an in-phase portion of the carrier;
3 and

4 the second unique Walsh function is modulated on the quadrature-phase portion of
5 the carrier.

1 18. The superframe of claim 17, wherein the first unique Walsh function and the
2 second unique Walsh function are concurrently modulated on the carrier.

1 19. The method of claim 11, wherein at least one voice packet also includes a
2 pointer to a subsequent voice packet.

1 20. The method of claim 19, wherein at least one Walsh function is employed to
2 identify the user and to indicate the length of a voice packet.